

# INSTALLATION INSTRUCTION

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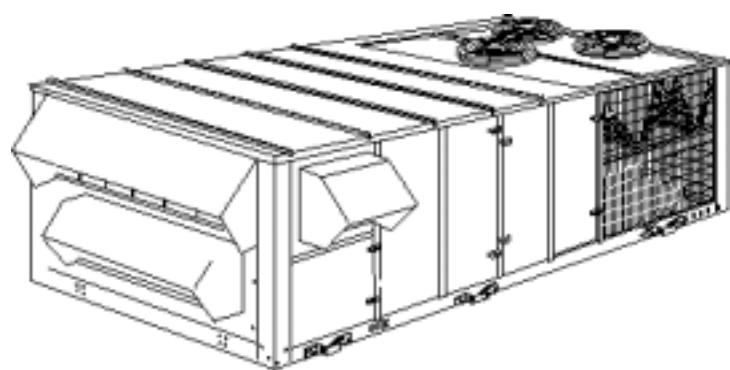
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**CAUTION: READ ALL SAFETY GUIDES BEFORE YOU BEGIN TO INSTALL YOUR UNIT.**

SAVE THIS MANUAL

# MILLENNIUM™ ROOFTOP

## CONTROLS UPGRADE FROM STYLE A TO STYLE C



## MODELS:

**Y13**

**Y14**

## STYLE A TO STYLE C



## DESCRIPTION

The installation of this kit (2RT04701A) replaces the W7400 module and will obsolete the T7400 thermostat. A new thermostat will be required to operate the unit.

This kit contains all necessary electrical components, sheet-metal parts, and wires to replace the W7400 module and the T7400 thermostats used in all Constant Volume 30-40 Ton Millennium Style A units. The kit contains the wiring needed for all options including CV W/ Economizer, CV W/O Economizer, Optional Gas Heat, and Optional Electric Heat. Figures 1 and 2 illustrate the location of the Millennium controls and the location of the W7400 in the control section. The new low-voltage electric box will be as shown in Figure 4.

**TABLE 1: PARTS SUPPLIED FOR CONTROL CHANGE**

QTY	PART No.	DESCRIPTION
1	073-21599-000	Backplate Bracket
1	025-16100-000	Terminal Block, 10 Pole
1	025-32699-000	Transformer, 24V to 24V
5	024-24116-000	Isolation Relay
4	021-15512-000	#10 Sheet metal Screws
1	035-16634-000	CV w/ECON Wiring Diagram
1	035-16636-000	CV w/ECON Connection Diagram
1	035-16635-000	CV W/O ECON Wiring Diagram
1	035-16637-000	CV W/O ECON Connection Diagram
1	035-16165-000	CV Electric Heat Wiring Diagram
1	035-16148-000	CV Gas Heat Wiring Diagram
1	373-22695-000	CV With Economizer Wire Pkg. <sup>1</sup>
1	373-22694-000	CV W/O Economizer Wire Pkg. <sup>2</sup>
1	373-22696-000	CV With Heat Wire <sup>3</sup>

1. See Table 4 for complete listing of wires in the CV with Economizer Package.
2. See Table 2 for complete listing of wires in the CV without Economizer Package
3. See Tables 3 and 5 for complete listing of wires in the CV unit with heat package

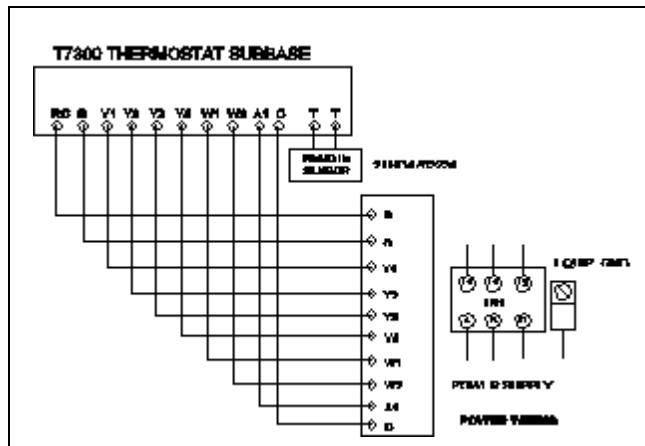
**TABLE 2: PARTS SUPPLIED FOR CV UNITS W/O ECONOMIZER<sup>1</sup>**

QTY	PART NO.	DESCRIPTION
1	373-18641-653	201/R
		816/R
		252/R
1	373-18641-654	257/Y
		817/Y
		818/Y
		819/Y
1	373-18641-659	842/BR
		814/BR
		813/BR
		812/BR
		834/BR
		835/BR
1	AB008RED7171230	230/R
1	AB024YEL5471240	240/Y
1	AB024ORN7171244	244/O
1	AB027GRA7171248	248/GY
1	AB022GRA7171800	800/GY
1	AB007YEL7171801	801/Y
1	AB007ORN7171802	802/O
1	AB009PRP7171803	803/PR
1	AB012GRA7171821	821/GY
1	AB018BRN7171836	836/BR
1	AB027PRP7171839	839/PR

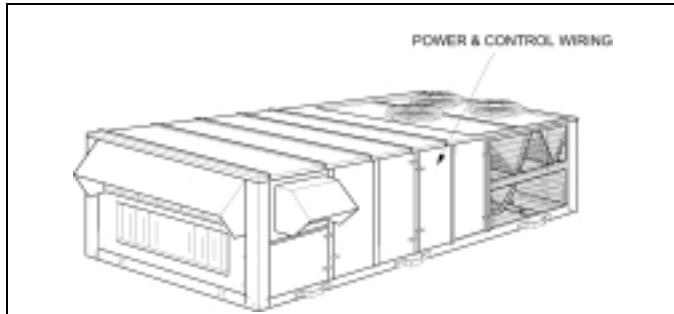
<sup>1</sup>. See Table 3 for units with optional heat.

**TABLE 3: PARTS SUPPLIED FOR CV UNITS WITH  
OPTIONAL HEAT**

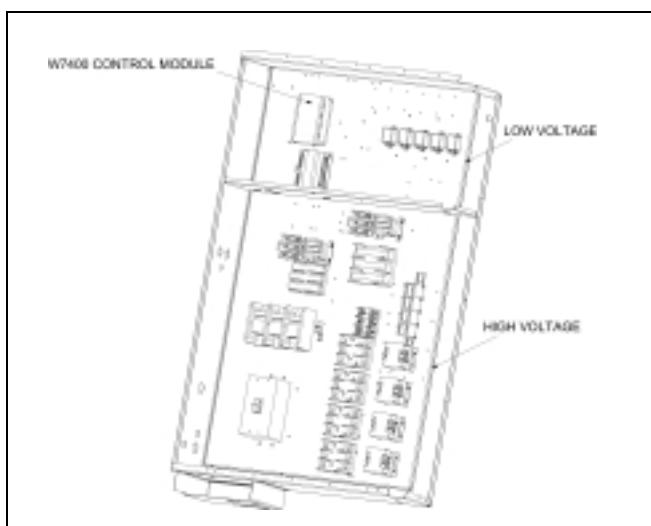
QTY	PART NO.	DESCRIPTION
1	373-18689-610	820/Y
		823/Y
1	373-18689-611	822/BR
		826/BR
1	AB144GRA7171844	844/GY
1	AB144WHT7171845	845/W
2	024-24116-000	Isolation Relay



**FIGURE 3 : TYPICAL THERMOSTAT WIRING**



## **FIGURE 1: POWER & CONTROL WIRING LOCATION**



## **FIGURE 2 : EXISTING CONTROL PANEL COMPONENT LOCATION**



*OPEN ALL DISCONNECTS BEFORE SERVICING THIS UNIT.*

The new thermostat requires a thermostat cable with a minimum of 10 conductors that run from the sub-base to the control box. The new wire will be connected as shown in Figure 3.

1. Locate the W7400 control module in the box-electric (Figures 1 and 2).
  2. Remove the following wires form the W7400 control module and from the unit.
    - 201/R
    - 208/BR
    - 254/GY
    - 252/Y
    - 257/Y
    - 248/GY
    - 240/Y
    - 244/O
    - 246/PR

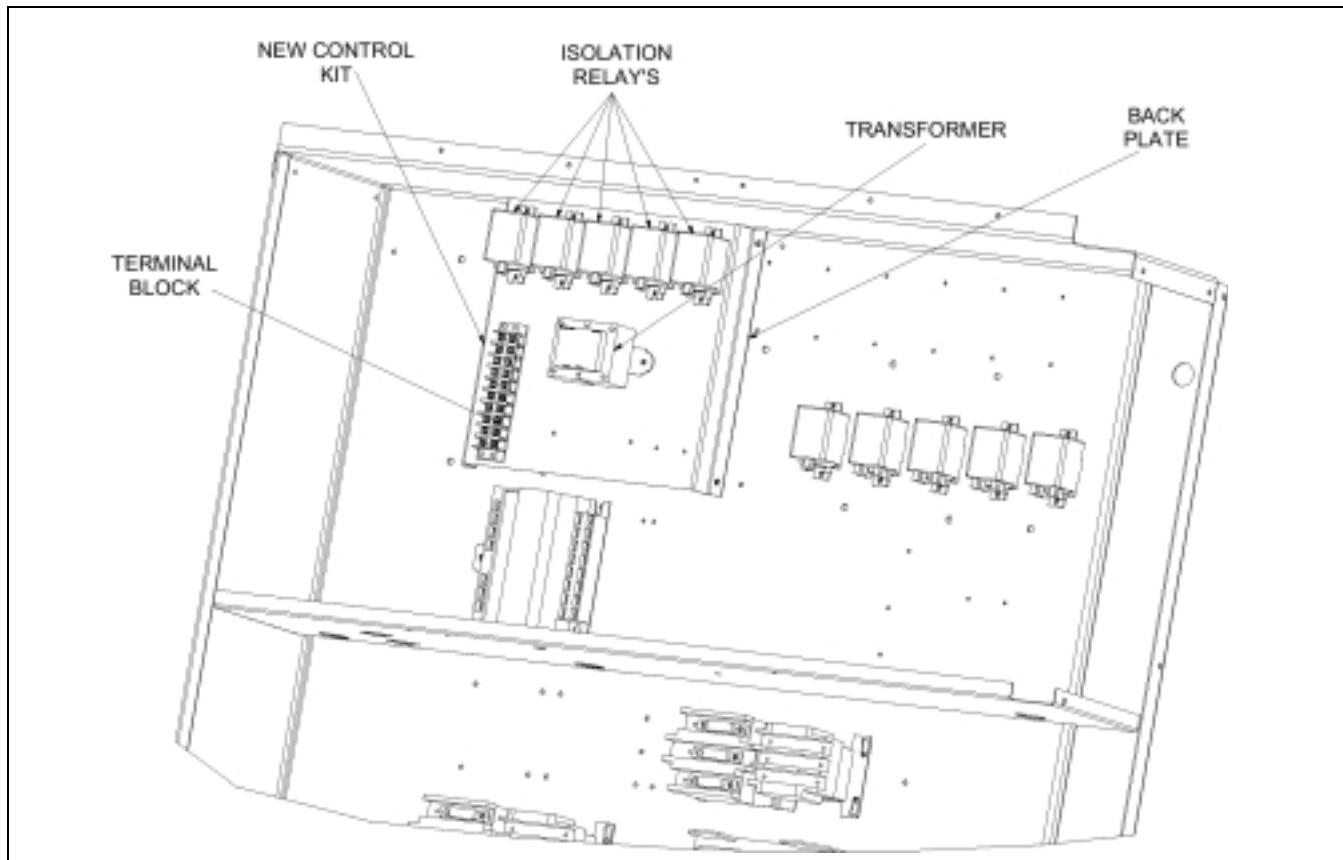
**NOTE:** Wire ties will need to be removed to remove above wires.

3. Disconnect wire 204/BR from the TR terminals on the w7400 control module.

**NOTE:** These wires will be used with the new controls.
  4. Disconnect thermostat wire from terminals 1-4 on the W7400 control module.

**NOTE:** This wire will be used with the new controls.

**NOTE:** STEPS 5 THROUGH 7 ARE FOR OPTIONAL HEAT ONLY.



**FIGURE 4 : NEW LOW VOLTAGE CONTROL COMPONENTS**

5. Disconnect wire 526/R from the 30FU location.
- NOTE:** This wire will be used with the new controls.
6. Disconnect wire 533/GY from the W7400 control module G terminal.
7. Disconnect wires 510/GY and 512/w from W1 & W2.
- NOTE:** These wires will be used with the new controls.
8. Remove the W7400 control module from the control box.
9. Locate the new control plate in box-electric in the location shown in Figure 4.
10. Using the four drill screws secure the back plate to the box-electric.
11. Locate the packet of wires marked with "No Econo-mizer".
12. Attach thermostat wires to new location TB12 (See Figure 3).
- NOTE:** For the following steps (13-34) see Figures 5, and 6 respectively.
13. Attach wire 230/R from 8T-7 to TB12-R .

14. Attach wire 836/BR from TB2 to 8T-6.
15. Attach wire 842/BR from 8T-6 to MR-B.
16. Attach wire 814/BR from MR-B to CR1-B.
17. Attach wire 813/BR from CR1-B to CR2-B.
18. Attach wire 812/BR from CR2-B to CR3-B.
19. Attach wire 834/BR from CR3-B to CR4-B.
20. Attach wire 835/BR from CR4-B to TB12-C.
21. Attach wire 800/GY from MR-A to TB12-G.
22. Attach wire 801/Y from CR1-A to TB12-Y1.
23. Attach wire 802/O from CR2-A to TB12-Y2.
24. Attach wire 803/PR from CR3-A to TB12-Y3.
25. Attach wire 821/GY from CR4-A to TB12-Y4.
26. Attach wire 240/Y from CR1-5 to LOR1-1-7.
27. Attach wire 244/O from CR2-5 to LOR1-2-9.
28. Attach wire 839/PR from CR3-5 to LOR2-1-7.
29. Attach wire 248/GY from CR4-5 to LOR2-2-9.
30. Attach wire 252/R from CL01 to MR-7.

31. Attach wire 816/R from MR-7 to 8T-2.
32. Attach wire 201/R from 8T-1 to 30FU.
33. Attach wire 204/BR to the new location on 8T-2.
34. Attach wire 257/Y from APS-N0 to CR1-7.
35. Attach wire 817/Y from CR1-7 to CR2-7.
36. Attach wire 818/Y from CR2-7 to CR3-7.
37. Attach wire 819/Y from CR3-7 to CR4-7.

**NOTE:** IF UNIT HAS OPTIONAL HEAT PLEASE CONTINUE WITH STEP 38.

#### **UNITS W/O ECONOMIZER AND OPTIONAL GAS OR ELECTRIC HEAT**

Units with optional Gas or Electric heat should follow the steps below. See Figure 7 for Gas Heat and Figure 8 for Electric Heat.

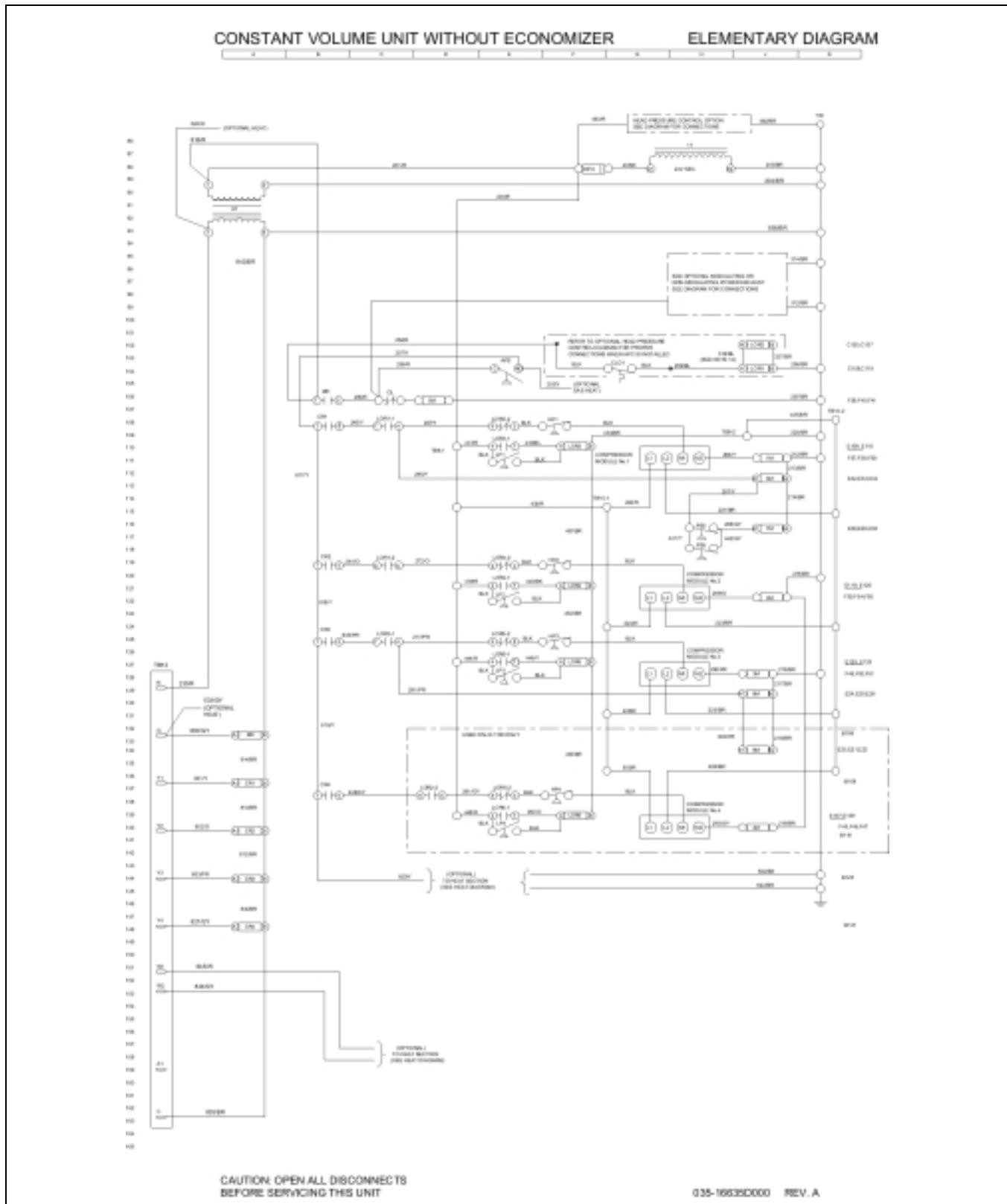
**NOTE:** This wire will be used with the new controls.

38. Mount WR1 & WR2 relays in the heat section.
39. Attach wire 526/R to the new location on 8T-7.
40. Attach wire 845/W from TB12-W1 to WR1-A.
41. Attach wire 844/GY from TB12-W2 to WR2-A<sup>1</sup>.
42. Attach wire 820/Y from CR4-7 to WR1-7.
43. Attach wire 823/Y from WR1-7 to WR2-7<sup>1</sup>.
44. Attach wire 826/BR from WR1-B to WR2-B<sup>1</sup>.
45. Attach wire 822/BR from WR1-B to TB2.
46. Attach wire 512/W to the new location at WR1-5.
47. Attach wire 510/GY to the new location at WR2-5<sup>1</sup>.
48. Attach wire 533/GY to the new location on TB12-G.

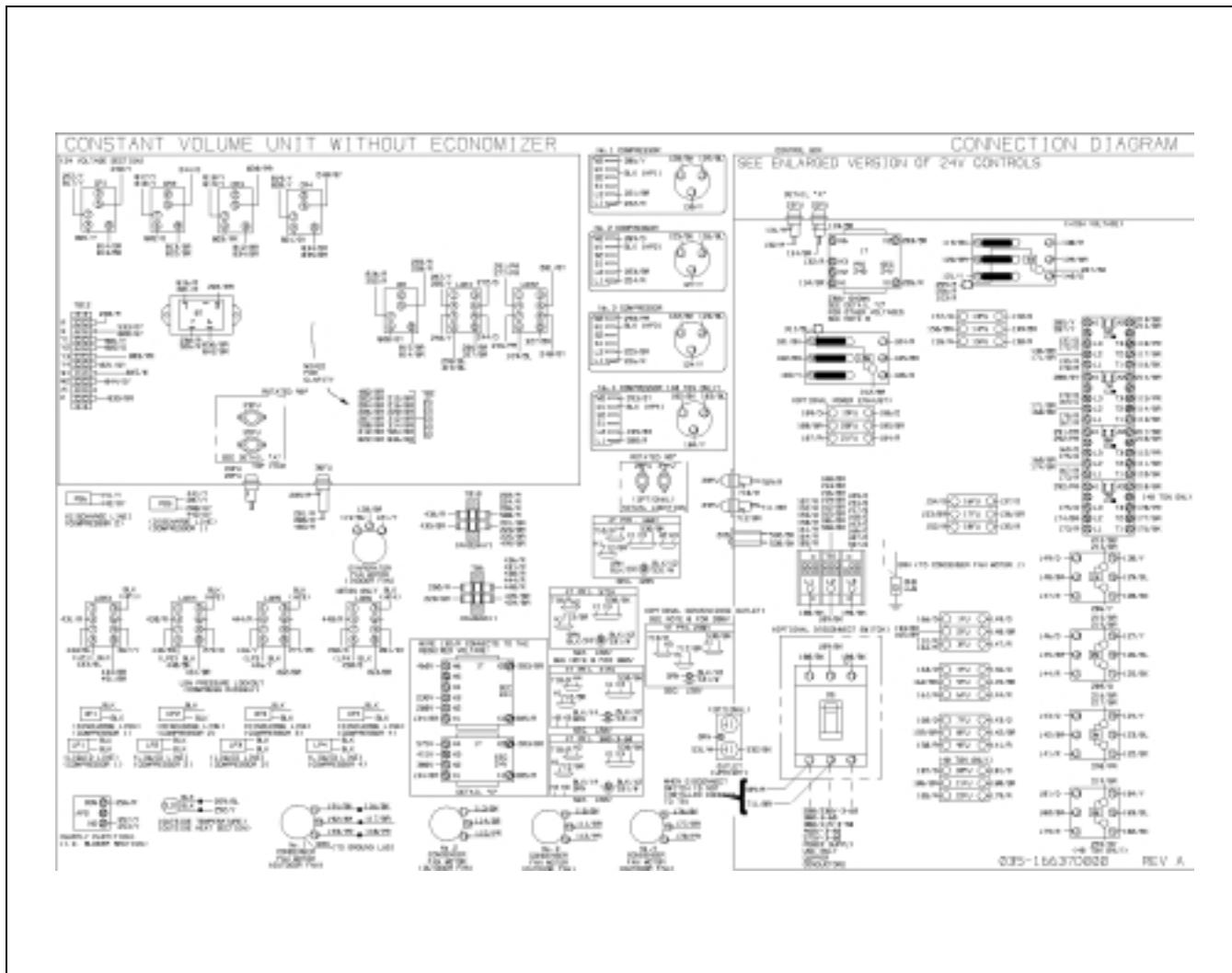
END OF INSTALLATION FOR CV UNIT WITHOUT ECONO-MIZER.

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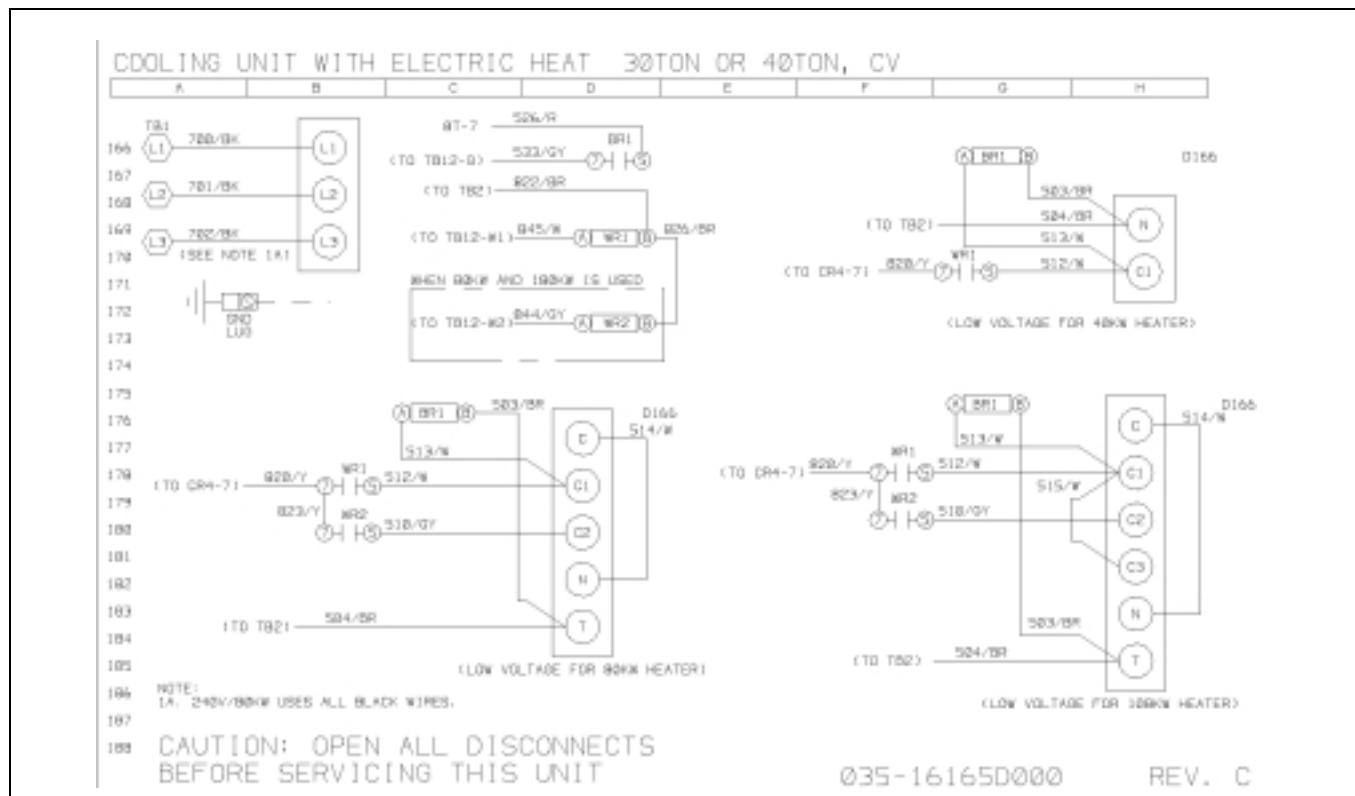
1. Only on units with 480 and 780 MBH gas unit or with 80kW and 180kW electric heat.



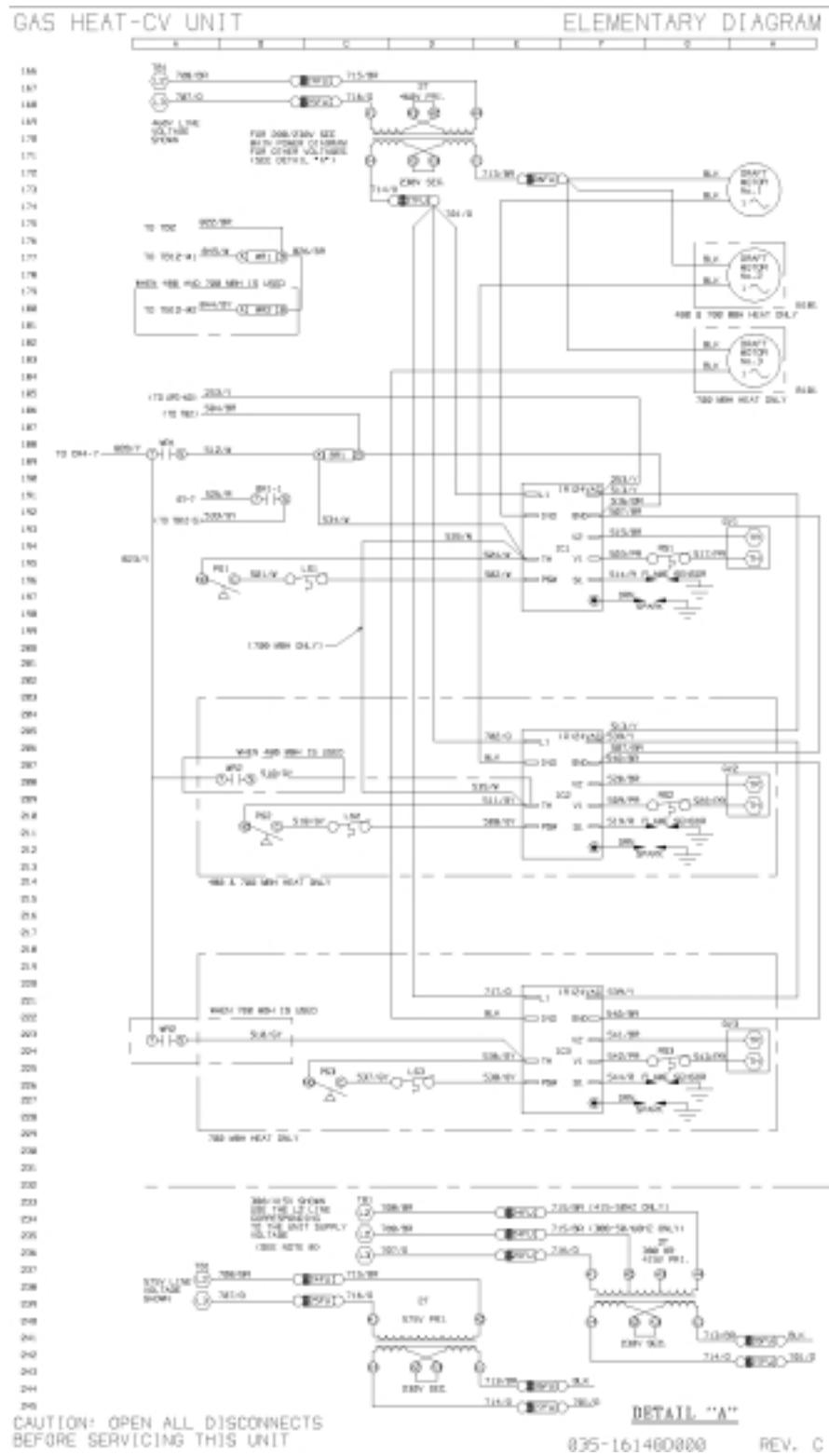
**FIGURE 5 : CONSTANT VOLUME UNIT WITHOUT A ECONOMIZER WIRING DIAGRAM**



**FIGURE 6 : CONSTANT VOLUME UNIT W/O ECONOMIZER WIRING DIAGRAM**



**FIGURE 7 : COOLING UNIT WITH ELECTRIC HEAT DIAGRAM AND WITHOUT ECONOMIZER**



**FIGURE 8 : CV UNIT WITH GAS HEAT AND WITHOUT ECONOMIZER WIRING DIAGRAM**

**CV UNITS WITH ECONOMIZER****TABLE 4: PARTS SUPPLIED FOR CV UNITS W/  
ECONOMIZER**

QTY	PART NO.	DESCRIPTION
1	373-18641-653	201/R
		816/R
		252/R
1	373-18641-654	257/Y
		817/Y
		818/Y
		819/Y
1	373-18641-655	307/O
		318/O
		828/O
1	373-18641-658	842/BR
		814/BR
		813/BR
		812/BR
		811/BR
		843/BR
		841/BR
1	AB008RED7171230	230/R
1	AB024ORN7171244	244/O
1	AB027GRA7171248	248/GY
1	AB020RED5471250	250/R
1	AB022GRA7171800	800/GY
1	AB007YEL7171801	801/Y
1	AB007ORN7171802	802/O
1	AB009PRP7171803	803/PR
1	AB016PRP7171809	809/PR
1	AB012GRA7171821	821/GY
1	AB018BRN7171836	836/BR
1	AB126RED711L837	837/R
1	AB027PRP7171839	839/PR

**TABLE 5: PARTS SUPPLIED FOR CV UNITS W/  
OPTIONAL HEAT**

QTY	PART NO.	DESCRIPTION
1	373-18689-610	820/Y
		823/Y
1	373-18689-611	822/BR
		826/BR
1	AB144GRA7171844	844/GY
1	AB144WHT7171845	845/W
2	024-24116-000	Isolation Relay

**CAUTION**

*OPEN ALL DISCONNECTS BEFORE SERVICING THIS UNIT.*

The new thermostat requires a thermostat cable with a minimum of 10 conductors that run from the sub-base to the control box. The new wire will be connected as shown in Figure 3.

1. Locate the W7400 control module in the electric/control panel (See Figure 1).
2. Remove the following wires from the W7400 control module:
  - 254/GY
  - 250/PR
  - 202/R
  - 294/R
  - 230/R
  - 240/Y
  - 244/O
  - 246/PR
  - 248/GY
  - 201/R
  - 252/Y
  - 257/Y
  - 208/BR
  - 307/O
  - 318/O
3. Disconnect wire 204/BR from the TR terminals on the W7400 control module.

**NOTE:** This wire will be used with the new control.

4. Disconnect thermostat wire from terminals 1-4 on the W7400 control module.

**NOTE:** Steps 6 through 8 are for optional heat only.

5. Disconnect wire 526/R from the 30FU location.
6. Disconnect wire 512/W and 510/GY from the W7400 control module W1 and W2 terminals.

**NOTE:** This wire will be used with the new controls.

7. Disconnect wire 533/GY from the W7400 G terminal.
8. Remove the W7400 control module from the control box.
9. Locate the new control plate in box-electric in the location shown in Figures 2 and 4.
10. Using the four drill screws secure the back plate to the box-electric.
11. Locate the packet of wires marked with "Economizer".
12. Attach thermostat wires to new location TB12 (See Figure 3).

For steps 13-43 see Figures 9 and 10.

13. Attach wire 230/R from 8T-7 to TB12-R.
14. Attach wire 836/BR from TB2 to 8T-6.
15. Attach wire 842/BR from 8T-6 to MR-B.
16. Attach wire 814/BR from MR-B to CR1-B.
17. Attach wire 813/BR from CR1-B to CR2-B.
18. Attach wire 812/BR from CR2-B to CR3-B.
19. Attach wire 811/BR from CR3-B to CR4-B.
20. Attach wire 843/BR from CR4-B to OR-B.
21. Attach wire 841/BR from OR-B to TB12-C.
22. Attach wire 800/GY from MR-A to TB12-G.
23. Attach wire 801/Y from CR1-A to TB12-Y1.
24. Attach wire 802/O from CR2-A to TB12-Y2.
25. Attach wire 803/PR from CR3-A to TB12-Y3.
26. Attach wire 821/GY from CR4-A to TB12-Y4.
27. Attach wire 809/PR from TB12-A1 to OR-A.
28. Attach wire 240/Y from CR1-5 to LOR1-1-7 .
29. Attach wire 244/O from CR2-5 to LOR1-2-9.
30. Attach wire 839/PR from CR3-5 to LOR2-1-7.
31. Attach wire 248/GY from CR4-5 to LOR2-2-9.
32. Attach wire 252/R from CLO1 to MR-7.
33. Attach wire 816/R from MR-7 to 8T-1.
34. Attach wire 257/Y from APS-NO to BRI-7.
35. Attach wire 201/R from 8T-1 to 30FU.

36. Attach wire 817/Y from CR1-7 to CR2-7.
37. Attach wire 818/Y from CR2-7 to CR3-7.
38. Attach wire 819/Y from CR3-7 to CR4-7.
39. Attach wire 204/BR to the new location on 8T-2.
40. Attach wire 828/O from RY2-A to OR-2-2.
41. Attach 318.O from RY2-A to RY1-A.
42. Attach 307/0 from R1Y-A to ELM-5.
43. Disconnect wire 239/R from ACT1-24V.

**NOTE:** This wire will be used with the new controls.

44. Attach wire 239/R to the new location on OR-1-5.
45. Attach wire 837/R from OR-1-7 to ACT1-24V.
46. Attach wire 250/R from ELM-TR to MR-5.

**NOTE:** IF UNIT HAS OPTIONAL HEAT CONTINUE WITH STEP 45.

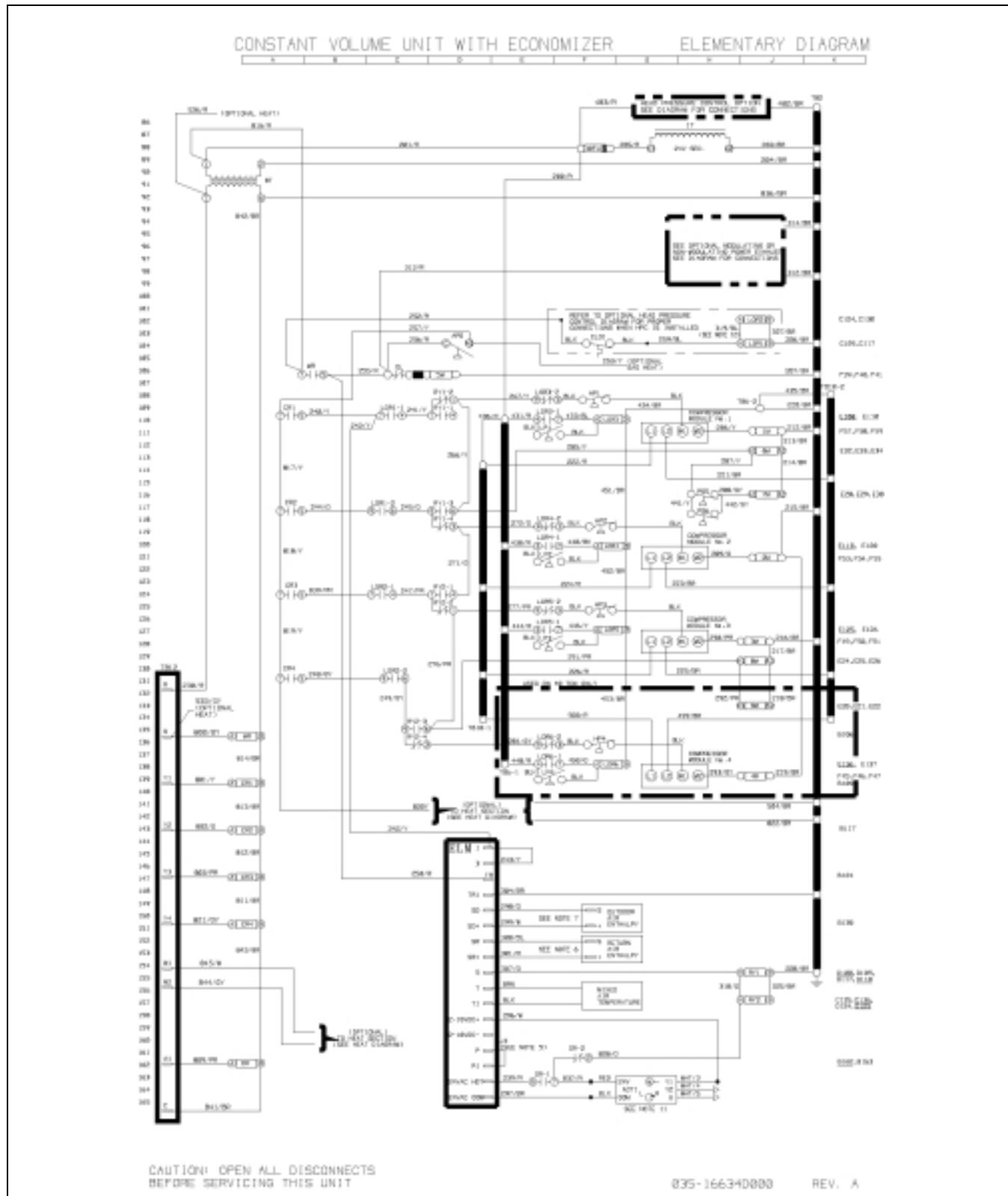
## CV UNITS WITH ECONOMIZER AND OPTIONAL HEAT

See Figure 11 for Gas Heat and Figure12 for Electric Heat.

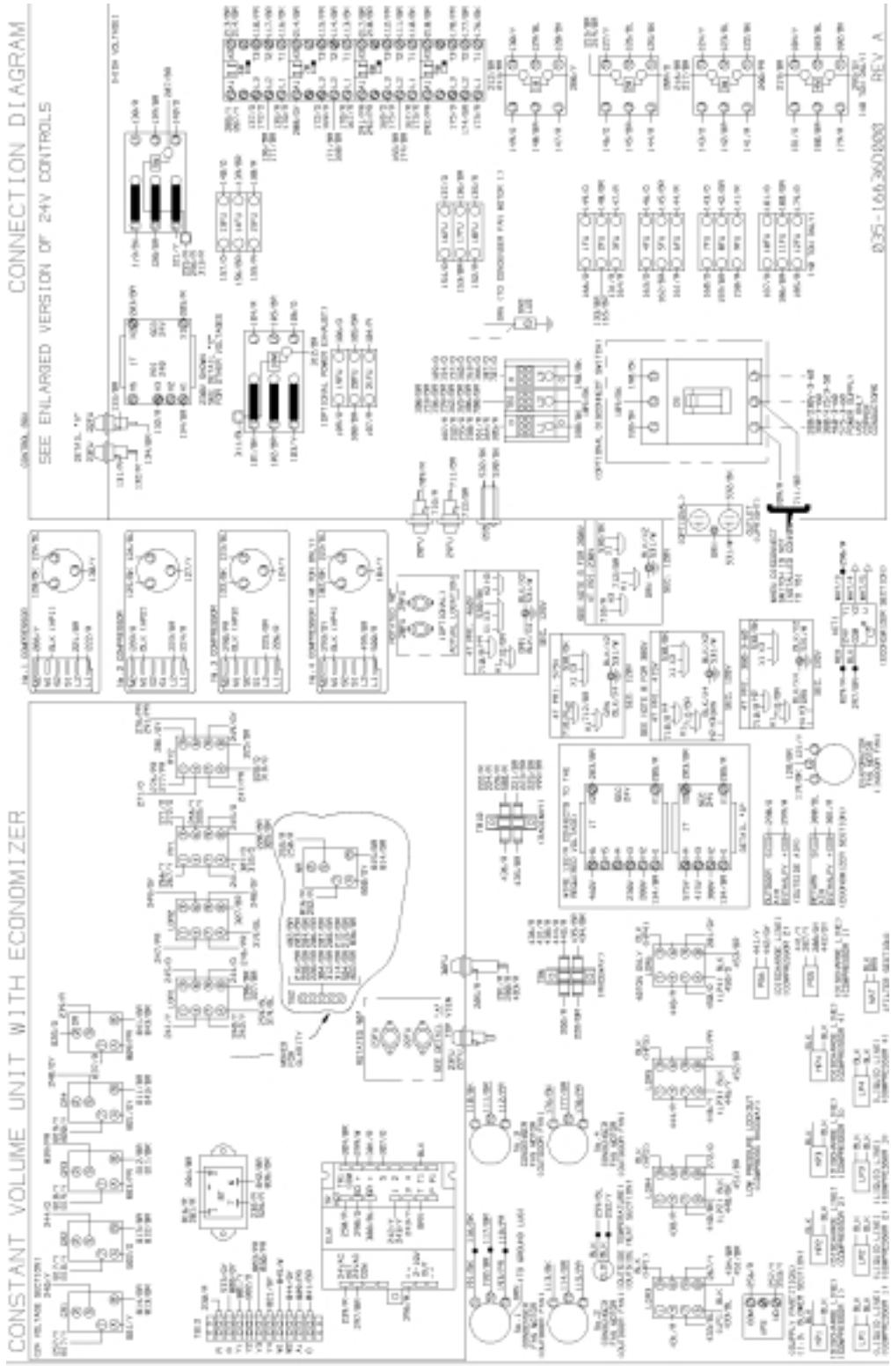
47. Mount the WR1 and WR2 relays in the heat section.
48. Attach wire 526/R to the new location on 8T-7.
49. Attach wire 845/W from TB12-W1 to WR1-A.
50. Attach wire 844/GY from TB12-W2 to WR2-A<sup>1</sup>.
51. Attach wire 510/GY to the new location at WR2-5<sup>1</sup>.
52. Attach wire 823/Y from WR1-7 to WR2-7<sup>1</sup> .
53. Attach wire 826/BR from WR1-B to WR2-B<sup>1</sup> .
54. Attach wire 822/BR from WR1-B to TB2.
55. Attach wire 512/W to the new location at WR1-5.
56. Attach wire 533/GY to the new location on TB12-G.
57. Attach wire 820/Y from CR4-7 to WR1-7.

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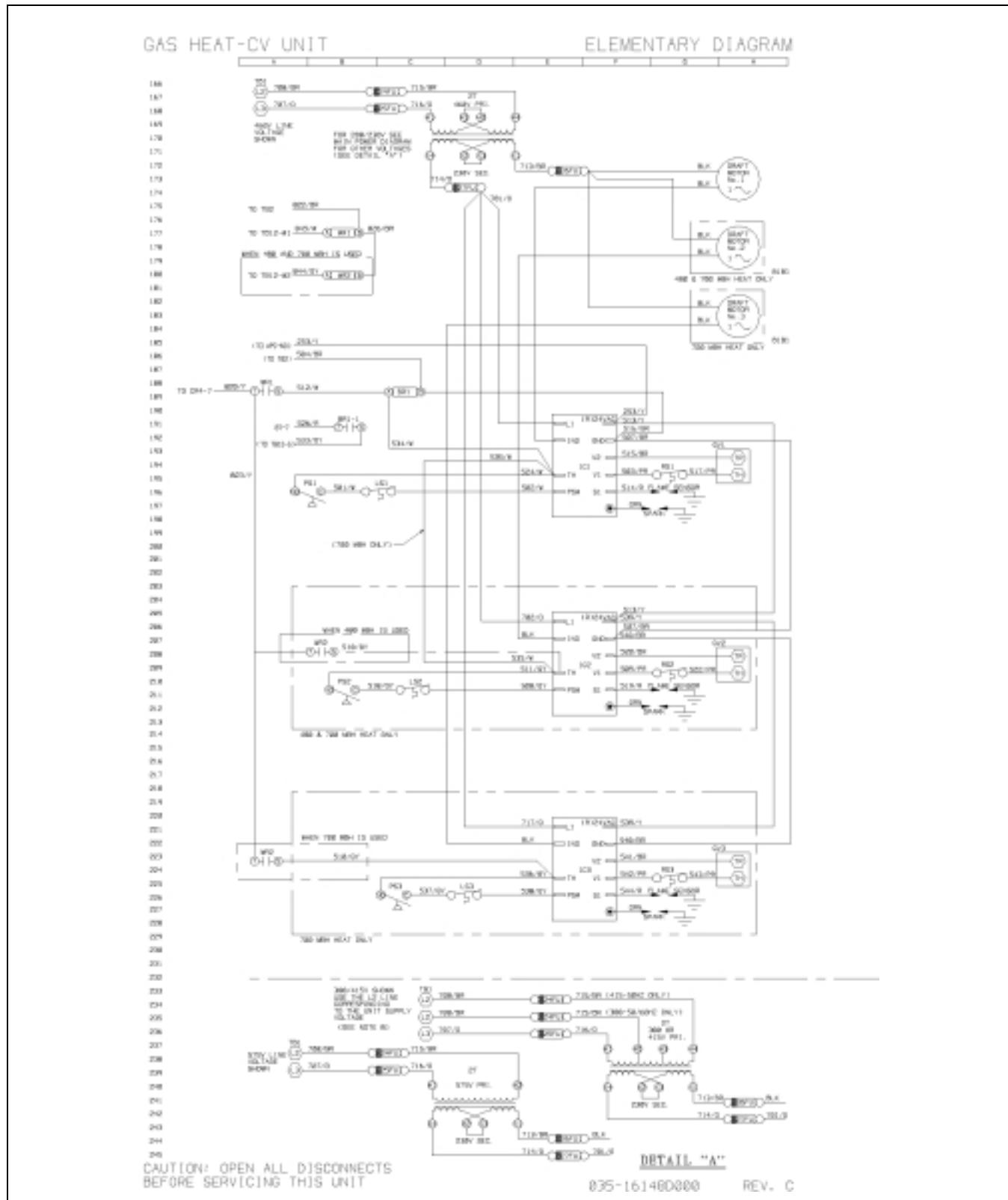
1. Only on units with 480 and 700 MBH gas heat or units with 80kW and 180kW electric heat.



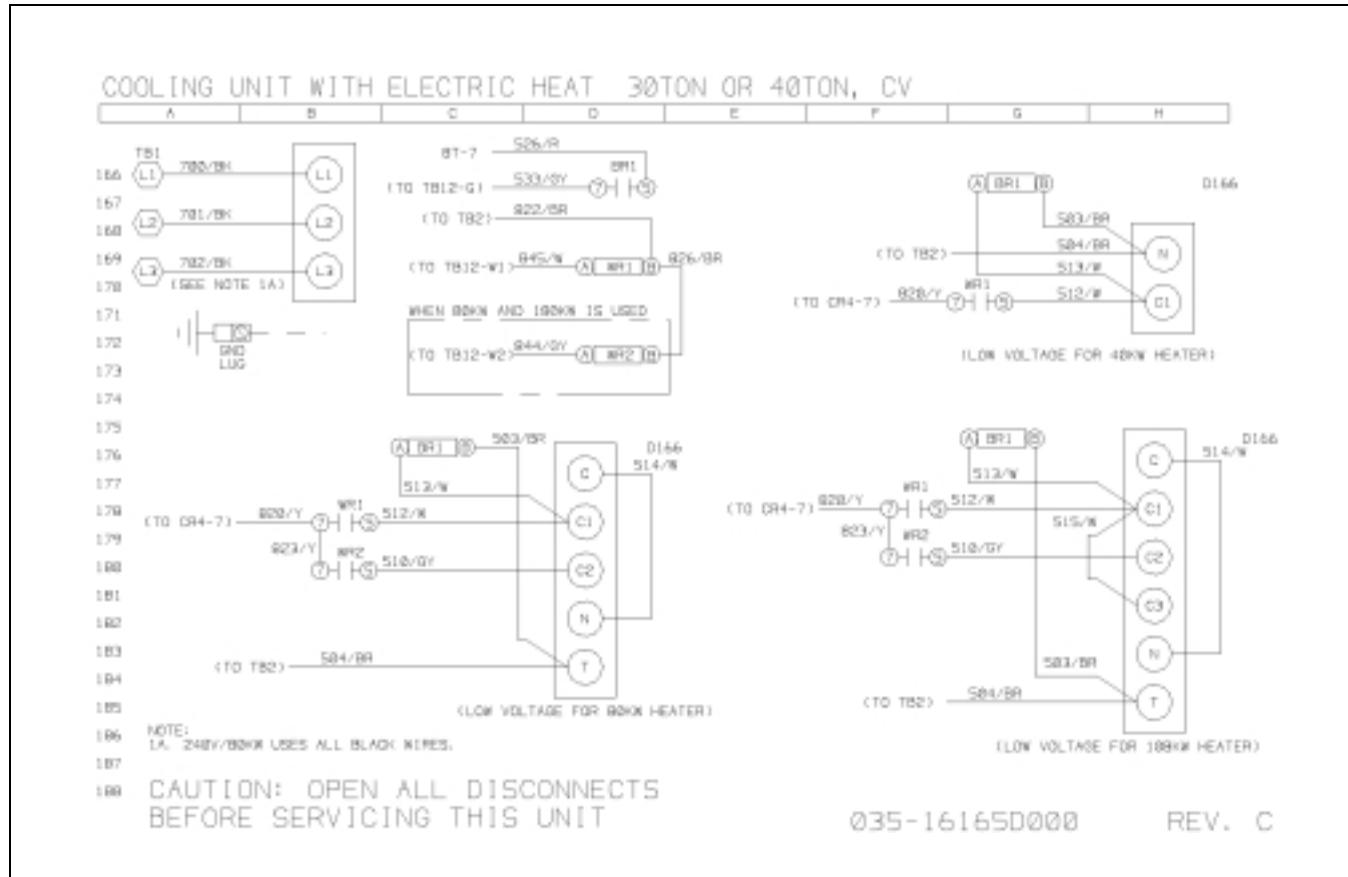
**FIGURE 9 : CONSTANT VOLUME UNIT WITH ECONOMIZER WIRING DIAGRAM**



**FIGURE 10 : CONSTANT VOLUME UNIT WITH ECONOMIZER CONNECTION DIAGRAM**



## **FIGURE 11 : CV UNIT WITH GAS HEAT AND ECONOMIZER WIRING DIAGRAM**



**FIGURE 12 : UNIT WITH ECONOMIZER AND ELECTRIC HEAT WIRING DIAGRAM**

